The State of White Pond

Spring 2016

For White Pond, it was the worst of times. And the best of times.

The past year saw White Pond suffer from a toxic algal bloom that resulted in the Pond's painful closure for most of the summer. At the same time unprecedented attention from Town residents, neighborhood stewards and Town government not only focused attention on long-standing issues but also produced tangible progress towards resolving those issues.

The Year 2015

2015 was an exceptionally busy year for the White Pond community. The big event was clearly the cyanobacteria bloom – actually multiple blooms. The first bloom was recorded at the end of June and after significant expansion the entire Pond was closed on July 8. Due to the time it took for the bloom to die off, as well as a subsequent albeit smaller bloom in August, White Pond was effectively closed for 2/3 of the summer. Sadly, White Pond was not the only Eastern Massachusetts body of water affected: Willis Pond in Sudbury [1], Jamaica Pond in Boston [2], and several others also experienced algal blooms last year. In fact, New England lakes overall are experiencing an increase in cyanobacteria blooms. [3]

At the same time, the White Pond community enjoyed a substantial amount of attention and activity. 2015 began with a huge turnout for the White Pond Forum, co-organized by the White Pond Advisory Committee (WPAC), the EPA, and Concord's Planning Division. Following the Forum, and incorporating information collected from it, the WPAC prepared a report for the Select Board entitled *A Shared Future: A Comprehensive Vision for White Pond, Its Watershed, and Its Neighborhoods* [4]. This Vision expanded upon the *White Pond Watershed Management Plan* [5] and described in detail the areas of major concern: water quality, neighborhood issues, recreation & stewardship, and town support. More importantly, the Vision outlined actions that the Town should undertake to address both resource management and people management. Several of these actions have already been initiated, including the stabilization of heavily eroded areas on Town land.

Two other major steps forward were the Select Board banning swimming from Town Conservation and Reservation lands abutting White Pond, and Town Meeting approving a Select Board sponsored warrant article authorizing $25,000 to fund Town Division of Natural Resources (DNR) efforts focused on White Pond. The DNR's efforts included hiring and managing two Town Rangers to patrol Town properties around White Pond, enforcing a swimming ban on Town properties, closing eroded trails, stabilizing erosion, and conducting additional water monitoring during the algal blooms with consultant ESS.

Another major step forward was Town Meeting's approval of a warrant article authorizing $25,000 to fund Town Division of Natural Resources (DNR) efforts focused on White Pond. These efforts included hiring and managing the Town Rangers to patrol Town properties around White Pond, enforce a swimming ban on Town properties, close eroded trails, stabilize erosion, and conduct additional water monitoring during the algal blooms with consultant ESS.

Meanwhile, the WPAC focused on outreach, collaboration, and education to engage the whole community. Guest speakers helped the WPAC collaborate and coordinate with various town departments. Representatives from the DNR, the Concord Police Department (CPD), and the Health Division (DPH) each met with the WPAC to discuss areas of common concern including neighborhood monitoring, regulation enforcement, water quality measurements, and the algal bloom. A presentation by aquatic biologist Professor Peter Tobiessen of Union College was a timely highlight as he educated the committee and numerous meeting guests on the biological underpinnings of kettle ponds and algal blooms. Outreach efforts resulted in new educational, stewardship, and water quality monitoring programs sponsored by the CCHS Rivers and Revolution program (begun in September 2015) and the EPA (scheduled to begin in June 2016). These new efforts are in addition to, and complement, the long-standing water quality program led by Dr. Bill Walker, Environmental Engineer, and the Friends of White Pond (FPOW), now in its 29th year. This past year Dr. Walker and FOWP also collected, documented, and analyzed algae samples.

Impact of the Algal Bloom

Still, the impact of the algal bloom cannot be understated. It was extensive, painful, and worrisome. It was the worst year on record.

It was a silent summer at White Pond, with normally crowded beaches devoid of the cheerful noises of children and families enjoying a day at the beach. The lack of a healthy beach for swimming, sunning, and picnicking significantly disrupted long-standing social opportunities, especially affecting families with young children for whom the Pond is a major play-date staple. Adults of all ages found their patterns disrupted as well, as the Pond was off-limits for reading, fishing, paddling, socializing, and distance swimming.

The impact was not only social, but economic as well. Numerous White Pond Association (WPA)[1] cardholders began to question the value received for their annual fee, potentially leading to reduced renewal rates in coming seasons. Additionally, some neighborhood residents expressed concerns about the possible reduction in property values on pond side properties.

The blooms also presented serious public health concerns regarding potential links between cyanobacteria and Amyotrophic Lateral Sclerosis (ALS, also known as Lou Gehrig's Disease) and other neurodegenerative diseases such as Alzheimer's and Parkinson's. [6] While such links

[1] WPA is the private beach association that manages and maintains the beach area on White Pond's eastern shores.

are currently unproven, this is an active area of medical research with a particular focus in New England. [7]

Additionally, residents began to wonder what will happen next. Is the pond safe for swimming and boating? Will the Pond be available for children's swimming lessons and beach play dates, fishing, picnicking and socializing, and generally escaping the summer heat? Or will they need to begin to make alternate summer plans?

The State of the Pond

White Pond's water quality – its most significant attribute – is today a big concern. Long-term data collected by Dr. Bill Walker over the last 29 years clearly demonstrate a negative trend as indicated by Secchi depth measurements, a water clarity metric and a convenient proxy for water quality. [8] Measurements made by environmental consultant ESS in 2013 and 2015 indicated increased levels of nutrients – phosphorus and nitrogen – in deep waters, a critical factor contributing to the algal bloom. While the exact source of those nutrients has yet to be conclusively identified, the likely suspects are internal nutrient recycling from pond sediments and surface runoff from public and private lands, especially eroded areas. [9] Additionally, a study by CCHS Rivers and Revolution students of fertilizer usage in the watershed indicated fertilizer deposition on properties abutting the Pond and farmed by Verrill Farm, although there is not yet any direct evidence of those fertilizers running off into the Pond [10].

The current water level in White Pond is the lowest in recent memory. The same is true at Walden, although Walden is much deeper. Long-term histories of both ponds show tremendous variation, and that the variations appear to strongly correlate with precipitation, although with some delay. [8] Interestingly, Thoreau seemed to understand that Walden's water levels were affected by long-transmission times through the aquifer: "It is commonly higher in the winter and lower in the summer, though not corresponding to the general wet and dryness." [11]

Water temperatures this past winter anecdotally seemed warmer than usual, as White Pond froze over much later in the winter than in recent years. In fact, the Pond did not freeze over until the especially frigid spell in early February and remained frozen for only about a week. Without that cold blast, the Pond may not have frozen over at all. Such warmer winter weather leads to concerns for summer water temperatures, as excessively warm waters set the stage for algal blooms and potential fish kills, especially at lower water levels such as we have now.

While water quality continues to degrade, White Pond's watershed is on the upswing. The past year saw significant, if temporary, improvements to eroded areas on both public and private lands. As noted previously, as instructed by the Select Board, DNR banned swimming from

Town Conservation and Reservation lands, closed several trails leading to eroded areas, and hired two rangers to patrol the areas and redirect users during the summer of 2015. DNR also installed temporary erosion controls in several spots on Town lands, and private property owners from Tracy Street and Old Pickard Farm Trust II identified and repaired heavily eroded spots in their areas. WPA also cleaned out the boat ramp catch basins and associated pipes. Using $20,000 approved in the Town Manager's budget for White Pond, DNR has re-hired the two rangers from last summer to patrol White Pond Conservation and Reservation lands in summer 2016. DNR also plans to make the erosion controls permanent with the $166,000 funding provided by the Concord Community Preservation Committee (CPC) in the April Town Meeting, however the actual work will not begin until summer 2017.

White Pond neighborhoods experienced substantially reduced traffic and parking due to the combination of the swimming ban and the algal bloom. While the reduced traffic and parking were welcome changes, the long-term neighborhood concerns remain as it is understood that the swimming ban is temporary and the algal bloom was a major deterrent. Nonetheless, people still came to White Pond and parked on neighborhood streets. Data collected by CPD through July and August 2015 indicated that 2/3 of those parking in the area were Concord residents, consistent with surveys conducted by Town Rangers of people encountered on Town Reservation and Conservation lands around White Pond. However, little should be concluded from this data given the unusual circumstances of the algal bloom. CPD intends to continue the neighborhood parking survey (all neighborhood streets, every day, same time in the afternoon each day) during the 2016 summer.

The advent of the Bruce Freeman Rail Trail (BFRT) and the expected resulting increase in trail traffic continues to be a concern, especially since construction of Phase 2C of the trail (north of Powder Mill Road) is scheduled to commence in the summer of 2017. Adding to this concern is the current lack of any protection from trail users along the stretch from Powder Mill Road to the Sudbury line, as the request for fencing along that stretch was denied by Mass DOT.

Progressing towards the Vision

In March of last year, the WPAC released its vision and recommendations for managing White Pond – *A Shared Future: A Comprehensive Vision for White Pond, Its Watershed, and Its Neighborhoods*. That report included a list of both short-term and long-term recommendations, some of which have already been implemented while others have yet to be initiated.

Most of the short term goals were accomplished in one manner or another.

- Areas of recurring erosion were stabilized with a quick, temporary implementation. DNR has funding to make more substantial and permanent erosion controls.
- The catch basins were cleaned by White Pond Associates (WPA), but not the infiltration chambers. As of the time of this writing WPA is making plans to clean the infiltration chambers.
- A seasonal parking ban on neighborhood streets was not implemented, but effectively the desired outcome – reduced parking and traffic in the surrounding neighborhoods – was achieved with the closure of both Town Reservation and Conservation land to swimming.

This is substantial progress, but there is still much to do. **The single most important item right now is to determine the specific root causes of White Pond's algal blooms and to subsequently develop a long-term water quality monitoring and restoration plan.** Much also is to be done on issues beyond that study and restoration plan:

- Pursue an arrangement with WPA to provide a controlled amount of public access to the WPA beach, during both the summer season (June through August) and the shoulder months (May and September) and implement and enforce a swimming ban from all town land (as described in the Vision).
- Actively support volunteer-led water quality monitoring programs.
- Regularly maintain the newly installed erosion controls.
- Regularly clean out the catch basins and infiltration chambers.
- Place educational and clear directional signage at key access point in the watershed.

The WPAC urges the Select Board and the Town DNR to bear in mind that the myriad issues and concerns related to White Pond are very complex and are unlikely to resolve with singular efforts. A continuous, long-term focus, including active support for Dr. Bill Walker's monitoring protocols, is needed in addition to the near-term actions. In short, the best approach to restore White Pond's health is to simply follow *The Vision* previously laid out by the WPAC, and to implement all of its recommendations.

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Photo Credits
Page 1: White Pond Algal Bloom, July 8, 2015, Bill Walker.
Page 3: White Pond Beach, May 16, 2016, Jerry Frenkil.

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